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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,256	02/12/2004	Franz Cemic	038664.49970D1	4161

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EXAMINER	
LAVARIAS, ARNEL C	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,256	CEMIC ET AL.	
	Examiner	Art Unit	
	Arnel C. Lavarias	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/21/05,8/22/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,4 and 7-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-10* is/are allowed.

6)☒ Claim(s) *3 and 4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/22/05 has been entered.

Response to Amendment

2. The amendments to Claims 3-4, 7-8 in the submission dated 8/22/05 are acknowledged and accepted. In view of the amendments made above, the rejections of Claims 7-10 in Section 7 of the Office Action dated 3/21/05 are respectfully withdrawn.

Response to Arguments

3. The Applicants' arguments with respect to Claims 3-4 have been considered but are moot in view of the new ground(s) of rejection.

4. The Applicants' arguments, see in particular Pages 8-9 of the submission, filed 8/22/05, with respect to the rejections of Claims 7-10, have been fully considered and are persuasive. The rejections of Claims 7-10 in Sections 11-12 of the Office Action dated 3/21/05 have been withdrawn.

5. Claims 3-4 are rejected as follows.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 3 is rejected under 35 U.S.C. 102(e) as being anticipated by Tsuji (U.S. Patent No. 6285855), of record.

Tsuji discloses an illumination device (See for example Figures 3A, 3B, 6) comprising a light source (See 1 in Figure 6); an optical fiber bundle (See 4 in Figure 6); a coupling-in optical system which couples the light of the light source into a first end of the fiber bundle (See for example 91, 92, 2, 3 in Figure 6), wherein the coupling-in optical system having a large numerical entrance aperture (See col. 7, line 49-col. 8, line 48; It is noted that the numerical aperture is defined as the product of half angle acceptance cone of the optical element and the refractive index of the medium in which the acceptance cone is in. Thus, in the instant case, the numerical aperture is $NA = n \cdot \sin(\theta) = \sin(\frac{\varepsilon b}{2})$ for Figure 3B, for example.); a coupling-out optical system which couples out the light emerging from a second end of the optical fiber bundle (See 5 in Figure 6); an illuminating optical system (See 93 in Figure 6) which illuminates an imaging field (See

94 in Figure 6); and a homogenizing optical system which is arranged between the coupling-out optical system and the illuminating optical system (See 7, 8 in Figure 6), wherein the homogenizing optical system homogenizes the nonuniform intensity distribution in the image field of the light emerging from the optical fiber bundle (See col. 5, lines 29-43), and wherein homogenization occurs only in an intermediate image plane (See 9 in Figure 6; col. 11, lines 35-55; It is noted that the term 'homogenization' does not specify whether the homogenization function is for the whole illumination device, or only for the homogenizing optical system. The Examiner has taken this to mean only for the homogenizing optical system.), and this homogenization is performed only by the homogenizing optical system (See col. 5, lines 29-42; col. 6, lines 36-58; col. 11, lines 35-55; The homogenizing optical system 7, 8 in Figure 6 only performs a single homogenization function which occurs at the location of the mask 9.).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji in view of Pedrotti et al. (F. L. Pedrotti, L. S. Pedrotti, 'Introduction to Optics', Prentice Hall, New Jersey, 1993, pp. 135-139.), of record.

Tsuji discloses the invention as set forth above in Claim 3, except for the numerical entrance aperture being greater than 0.60. However, Tsuji further addresses increasing the emission angle ε from a smaller value εa to a larger value εb, thus increasing the numerical aperture (See col. 7, line 49-col. 8, line 48; Note that the numerical aperture is given as $NA = n \cdot \sin(\theta) = \sin(\frac{\varepsilon}{2})$.). Further, it is well known in the art to utilize lenses or groups of lenses to obtain a high numerical aperture. For example, Pedrotti et al. teaches that typical numerical apertures for lens groups such as microscope objectives may range from 0.08-1.3, with 0.05, 0.1, 0.2, 0.4, 0.6, and 0.8 being extremely common for non-immersed lenses, and values greater than 1.0 being common for immersion lenses. Pedrotti et al. further teaches that high numerical aperture lenses impart particular advantages to the optical system, including higher image brightness, greater resolving power, and shorter working distance. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the numerical entrance aperture of the coupling-in optical system be greater than 0.60, as taught by Pedrotti et al., in the illumination device of Tsuji, for the purpose of increasing image brightness and resolving power of the illumination device, while allowing for shorter working distances.

Allowable Subject Matter

10. Claims 7-10 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter:

Claims 7-8 are allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest a coordinate measuring instrument, as generally set forth in Claims 7-8, the coordinate measuring instrument including, in combination with the features recited in Claims 7-8, the homogenizing optical system homogenizing the nonuniform intensity distribution in the image field of the light emerging from the optical fiber bundle, and a detector for determining the coordinates of the feature within the X-Y displaceable measurement stage. Claims 9-10 are dependent on Claims 7-8, and hence are allowable for at least the same reasons Claims 7-8 are allowable.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4964692 to Prescott.

Prescott is being cited to evidence an illumination device (See for example Figure 1) similar to the claimed invention. In particular, the illumination device of Prescott includes a light source (See 60 in Figure 1), an optical fiber bundle (See 20 in Figure 1), and a homogenizing optical system (See 30 in Figure 1).

U.S. Patent Application Publication US 2003/0002296 A1 to Steiner et al.

Steiner et al. is being cited to evidence an illumination device (See for example Figures 1A-C; 2A) similar to the claimed invention. In particular, the illumination device

of Steiner et al. includes a light source (See 12 in Figure 1A), an optical fiber bundle (See 25 in Figures 1B-C, 2A), a coupling-in optical system (See for example fiber ends 25 closest to lamp 12 in Figure 2A), a coupling-out optical system (See 30 in Figure 1A), an illuminating optical system (See 50, 60, 72 in Figure 1A), and a homogenizing optical system (See 40 in Figure 1A).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Arnel C. Lavarias
Patent Examiner
Group Art Unit 2872
11/18/05